

NOV 13 2006

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**Novak Druce DeLuca  
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# Fax

To:	USPTO - Mail Stop ISSUE FEE	From:	James Remenick
Fax:	(571) 273-8300	Pages:	5
Phone:	(571) 272-1000	Date:	November 13, 2006
Re:	Docket No. 53622	cc:	

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## • Comments:

In re Application of: HESSE, et al.  
Serial No.: 10/517,263  
Filing Date: December 7, 2004  
Attachments: Issue Fee Due  
PTO Form 2038 &  
Comments on Statement of Reasons for Allowance

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LaTovia Oliver (Depositor's name)  
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November 13, 2006 (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10517263	12/07/2004	Michael Hesse	53622	8669

TITLE OF INVENTION: METHOD FOR THE PRODUCTION OF 1,4-BUTANEDIOL

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	11/13/2006

EXAMINER	ART UNIT	CLASS-SUBCLASS
DENTZ, BERNARD I	1625	568-864000

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BASF Aktiengesellschaft

Ludwigshafen, Germany

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5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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Authorized Signature

Typed or printed name James Remarick

Date November 13, 2006

Registration No. 36,902

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION

DOCKET No.: PF 53622

OF: HESSE ET AL.

CONFIRMATION No.: 8669

SERIAL No. 10/517,263

GROUP ART UNIT: 1625

FILED: DECEMBER 07, 2004

EXAMINER: B. I. DENTZ

FOR: METHOD FOR THE PRODUCTION OF 1,4-BUTANEDIOL

Honorable Commissioner  
for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

COMMENTS ONSTATEMENT OF REASONS FOR ALLOWANCE

Sir:

In light of the Notice of Allowance dated August 11, 2006, and the Examiner's Statement of Reasons for Allowance enclosed therewith, applicants respectfully submit the following comments:

COMMENTS

The Examiner indicated that the teaching of Budge et al. (US 5,196,602) was considered to be the closest prior art, and stated that the reference differed from the claimed invention in not having CuO as part of the catalyst system, and in not having an oxide for support. For clarification the following is respectfully noted.

Budge et al. address a procedure in which maleic anhydride is hydrogenated to produce 1,4-butanediol in two stages.

The first stage of the prior art procedure entails a hydrogenation of maleic anhydride to succinic acid and/or gamma-butyrolactone<sup>1)</sup> which is conducted in the presence of "any hydrogenation catalysts which will effect the conversion ... Representative of suitable cata-

1) Cf. col. 2, indicated lines 44 to 47, of US 5,196,602,

Serial No. 10/517,263

HESSE et al.

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lysts are copper chromite, Pd/Al<sub>2</sub>O<sub>3</sub>, Pd on carbon support, or mixed oxide catalysts comprising copper, zinc and aluminum.<sup>2)</sup>

The second stage of the prior art procedure in which the succinic acid and/or gamma-butyrolactone is hydrogenated to 1,4-butanediol<sup>3)</sup> is conducted in the presence of a specific ruthenium-containing catalyst,<sup>4)</sup> which contains in addition to ruthenium certain amounts of:<sup>5)</sup>

- at least one nickel and palladium;
- at least one of iron, cobalt, rhodium, osmium, iridium and platinum, and
- at least one of zinc and cadmium,

in the form of oxides but does not comprise CuO. It may, however, be supported or unsupported.<sup>6)</sup>

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Respectfully submitted,  
NOVAK DRUZE DELUCA & QUIGG

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2) Cf. col. 2, indicated lines 50 to 56, of US 5,196,602.

3) Cf. col. 2, indicated lines 47 to 50, of US 5,196,602.

4) Cf. col. 2, indicated line 58, to col. 3, indicated line 5, of US 5,196,602.

5) Cf. col. 1, indicated lines 58 to 68, of US 5,196,602.

6) Cf. col. 2, indicated lines 16 to 19, of US 5,196,602.